Incedo™ Open – InControl 3270 and ToConnect 3270

Quick Controller Guide

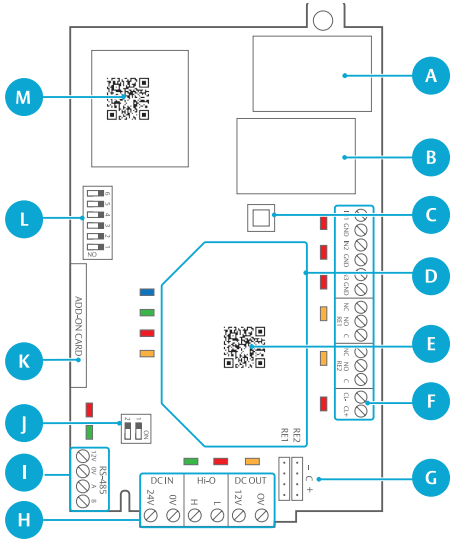
ASSA ABLOY
Opening Solutions

Controller Unit Specifications

Power supply	17-30 V DC. A UPS solution is recommended
Internal current consumption	At 27.8 V: 96 mA Max 120 mA
PoE	PoE+ 30 W IEEE 802.3at
Power Out	12-14 V DC, max 1.6 A (independent of power option)
Operating environment	+5 ° C to +40 ° C, RH 5 % to 95 %
IP rating	IP44
Dimensions (housing)	182.3 x 182.3 x 45.5 (W x H x D mm)
Maximum number of Device converters per Controller	16

Controller Unit Overview

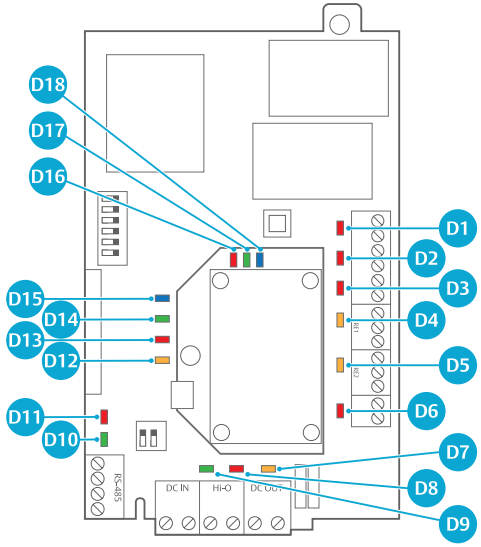
Hardware components such as electric strikes and readers are connected to Controllers (InControl 3270) and Device converters (ToConnect 3270). Settings for either controller unit can be made on the Mode selection DIP (L), and relay jumper pins (G). The RS-485 bus is terminated on terminal block T3 (I).



Controllers are equipped with an additional controller board (D), but the I/O connectivity is the same for both controller units.

A) RJ-45 Ethernet connector PoE+
B) RJ-45 Ethernet connector (no PoE)
C) Tamper switch
D) InControl 3270 only: Controller board
E) InControl 3270 only: Label with MAC address (both text and QR code) for Controller. For mounting InControl 3270 units.
F) Terminal block T1: Analogue inputs and relay outputs
G) Relay jumper pins
H) Terminal block T2: DC IN, Hi-O, DC OUT
I) Terminal block T3: RS-485
J) RS-485 termination
K) Add-on card connector
L) Mode selection DIP
M) Label with MAC address (both text and QR code) for Device converter. For mounting converters, such as ToConnect 3270.

The MAC addresses are used to map controller units in the Incedo™ Open web application. The Controller (InControl 3270) has two separate MAC addresses, since it can act both as a Controller and a Device converter.



LED Indicators

Controller and Device converter LED reference:

LED	Col	Name	On	Blinking
D1	Red	Input IN1	Input is active (triggered)	Sabotage (wire cut)
D2	Red	Input IN2	Input is active (triggered)	Sabotage (wire cut)
D3	Red	Input IN3	Input is active (triggered)	Sabotage (wire cut)
D4	Yellow	Relay RE1	Relay is active	n/a
D5	Yellow	Relay RE2	Relay is active	n/a
D6	Red	Not used	n/a	n/a
D7	Yellow	DC out over-load	12 V DC output and/or onboard relays draw current beyond capacity	n/a
D8	Red	Hi-O encrypted	Hi-O bus is locked (encrypted)	n/a
D9	Green	Hi-O unlocked	Hi-O bus is unlocked	n/a
D10	Green	RS-485 RX	Data is being received over the RS-485 bus	n/a
D11	Red	RS-485 TX	Data is being transmitted over the RS-485 bus	n/a
D12	Yellow	Voltage detected	Power supply detected on DC IN terminal or PoE+ port	n/a
D13	Red	Not used	n/a	n/a
D14	Green	Network status	Device converter is communi-cating with the Controller.	IP address received
D15	Blue	Service status	Device converter is not running the firmware	Device converter is running the firmware
D16	Red	Controller only: Number of disconnected devices	n/a	Blinking to indicate number of disconnected devices (Device converter or Well-Com units). One blink per disconnected device, then a pause for 3-4 seconds (repeated).
D17	Green	Controller only: Number of connected devices	n/a	Blinking to indicate number of connected devices (Device converter or WellCom units). One blink per connected device, then a pause for 3-4 seconds (repeated).
D18	Blue	Controller only: Controller status	n/a	Slow blinking: Controller is working, connected to cloud. Fast blinking: Controller is not connected to cloud.

Warning!
Ensure that the controller unit is powered off before connecting or disconnecting any wire or cable.

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System Installation Overview

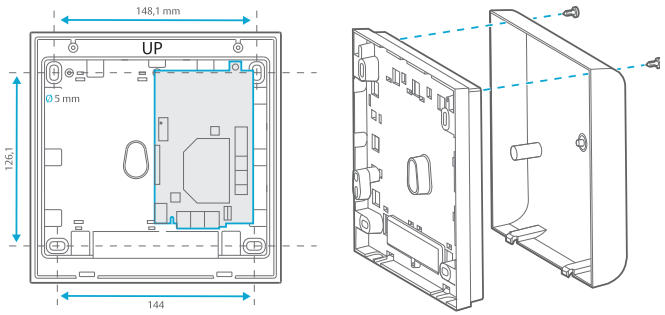
A typical system installation could be outlined as follows. All steps are described in the *Incedo™ Open Operator Guide.*

1) A new system is created by ASSA ABLOY Opening Solutions and a system owner is assigned. An email with instructions on how to proceed is sent to the new system owner.
2) The system owner logs in and sets up different roles, adds operators such as system admins, installers, receptionists, and more.
3) Select whether PULSE encryption keys are unique per building or shared by all buildings in the system. This cannot be changed after a building has been added.
4) Add a new building with one or several floors. If administrating a residential building, also add apartments and leases.
5) Define door types, to be used later when doors are added to the building.
6) Add controller units, update to the latest controller firmware and add doors.
7) The added components are ordered from ASSA ABLOY Opening Solutions or a reseller, and installed on the premises. For details on installation of hardware components, see *Incedo™ Open InControl 3270 / ToConnect 3270 Installation Guide* .
8) Mark the installed online hardware devices as mounted in the Incedo™ Open web application by mapping their unique MAC Addresses to the doors and controller units.
9) Define calendars and hardware schedules, to be used later when doors are configured.
10) Configure the mounted components using different schedules, time-settings, and other device-specific configurations.
11) Define access areas, offline door groups, and access schedules.
12) Combine access areas and offline door groups with schedules into access profiles.
13) Credential formats might have to be added before credentials can be handled in the system.
14) Add users as needed, assign access profiles and hand out credentials.

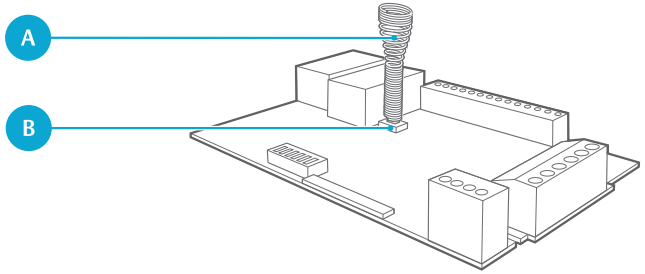
Installing Controller Unit

The supplied housing have room for one add-on card.
It is secured to the wall using four 5mm screws (not included). Cables can either be run from a hole in the wall or from the sides. Before mounting, consider placement with respect to cabling needs and exposure to wear and damage.

While the cover is off, note the MAC address used to map the unit in the Incedo™ Open web application. In case of installing InControl there are two separate MAC addresses.



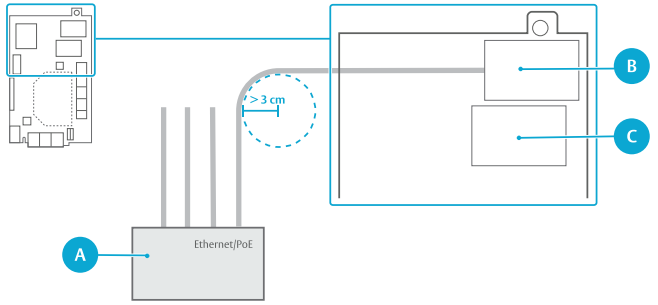
1) Secure the back cover to the wall, with the part marked UP facing upwards.
2) Optional: Install an additional relay board.
3) For the selected components and interfaces, make the desired cable connections.
4) Connect the power supply, and power up the unit. Either by connecting DC IN on terminal block T2 or by connecting a network cable with PoE to the RJ-45 PoE+ connector.
5) Connect the controller unit to the local network.
6) Ensure that the tamper spring (A) is secured to the tamper switch (B). It should fit tightly around the button.



7) Close the front cover and secure it with the two screws.

> **Note!**
> The LEDs on the PCB are turned off when the lid is closed properly, with the tamper spring in correct position.

Connecting Controller Unit



A) Network router or switch
B) RJ-45 Ethernet connector PoE+
C) RJ-45 Ethernet connector (no PoE)

> **Note!**
> Category 5e, or higher, unshielded twisted-pair cables are recommended. The minimum bending radius is 3 cm. Do not run unshielded network cables near power cables with high currents.

1) To connect a Controller to the cloud service:

Controller	Connect to
RJ-45 Ethernet connector	Local network router or switch with Internet access, with or without PoE+.

2) To connect a Device converter to the parent Controller:

Device converter	Connect to
RJ-45 Ethernet connector	• The parent controller's local network switch. • Optional: The parent controller's free RJ-45 Ethernet connector (no PoE).

If the unit is not powered by PoE+ on the RJ-45 connector (B), it must be powered by 24 V DC on terminal block T2, DC IN.

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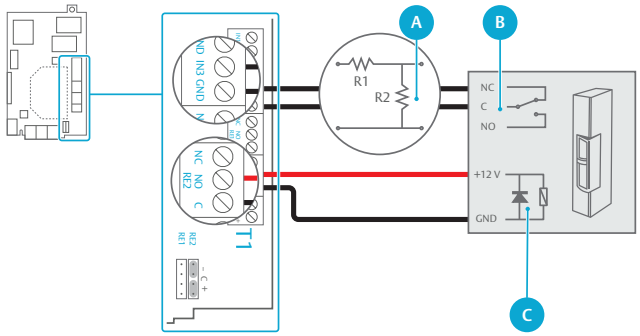
Connecting 12 V Electric Strike



Optional dual loop (A), door sensor (B), flyback diode (C).

1) Select input and relay.
An additional relay board can also be used.

Function	Quantity	I/O
Electric strike	1	RE1-2 Relay board: RE3-RE8
Door sensor	0-1	IN1-IN3 Relay board: IN4-IN7

2) Connect the electric strike.
Configure the relay to supply 12 V. Configure the electric strike for NO (fail-secure) or NC (fail-safe) operation. Mount a flyback diode between the + and C/0 V/GND terminals.

Jumper setting	Relay output mode
– C +	Powered mode: RE1 or RE2 connector NC or NO supplied +12 V DC C connected to ground.

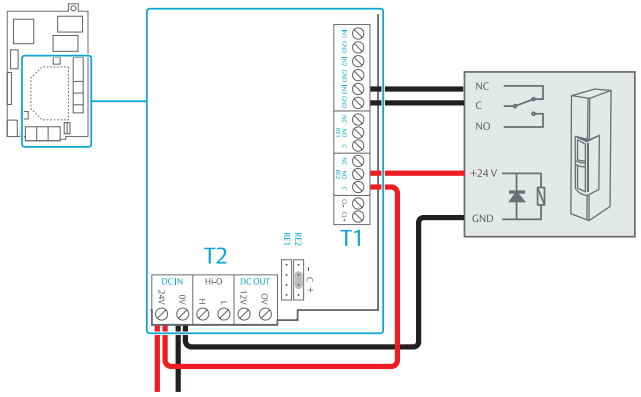
Make the connections.

Terminal T1	Electric strike
NO or NC	+ (NO or NC)
C	C/0 V/GND

3) Optional: Connect the door sensor.
Mount the input as dual loop in the web application and connect dual loop resistors in the switch.
Make the connections.

Terminal T1	Electric strike
IN	NC
GND	0 V/C

Connecting 24 V Electric Strike



1) Follow step 1) from *Connecting 12 V Electric Strike*.

2) Connect the electric strike.
Configure the relay to passive mode and supply 24 V from the board. Configure the electric strike for NO (fail-secure) or NC (fail-safe) mode, and mount a flyback diode between the + and C/0 V/GND terminals.

Jumper setting	Relay output mode
– C +	Passive mode: RE1 or RE2 connectors NC, NO, and C directly connected to the relay.

3) Make the connections.

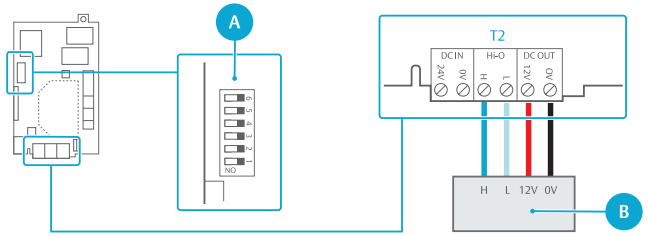
Terminal	Electric strike
NO or NC	+ (NO or NC)
0 V	C/0 V/GND

Terminal T1	Terminal T2
C	DC IN 24 V

4) Follow step 3) from *Connecting 12 V Electric Strike*.

Note!
Ensure that the specifications are not exceeded.
The maximum load is 1 A at 28 V DC.

Adding Hi-O Devices



Mode selection DIP (A), Hi-O device or bus (B).

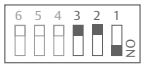
1) Locate terminal block T2.

2) Connect the Hi-O bus device to the controller unit.

Terminal T2	Connect to
Hi-O H	H terminal on the Hi-O device or bus.
Hi-O L	L terminal on the Hi-O device or bus.
DC OUT 0 V	0 V/ground terminal on the Hi-O device or bus.
DC OUT 12 V	Optional. +12 V on the Hi-O device or bus.

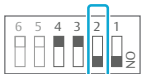
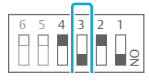
3) If externally powered, power up the Hi-O device.

4) To pair a Hi-O device with the controller unit at the next power up, set the Mode selection DIP switch 1 to ON.

Mode selection DIP	Function
	DIP1 = ON: Hi-O pairing mode at power-up

5) Optional: Select whether electric locks should be active or inactive at power failures, and whether electric strikes should operate in failsafe or fail secure mode.

Note!
Option valid from firmware 1.0.1.

Mode selection DIP	Function
	DIP2 = ON: Deactivates the door lock monitor in Hi-O motor locks. DIP2 = OFF: Activates the door lock monitor in Hi-O motor locks (default).
	DIP3 = ON: Deactivates the door lock monitor in any other Hi-O locks and strikes. DIP3 = OFF: Activates the door lock monitor in any other Hi-O locks and strikes (default).

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	DIP4 = ON: Failsafe for electric strikes. Unpowered strikes are open. DIP4 = OFF: Failsecure for electric strikes. Unpowered strikes remain locked.

7) Power up the controller unit.
LED D15 (blue, Service status) is steadily lit during the Hi-O pairing process. When LED D15 blinks, and LED D7 (yellow, DC overload) blinks fast, the pairing process is complete.

8) Reset the Mode selection DIP switch 1 back to OFF.

Mode selection DIP	Function
	DIP1 = OFF: Normal operational mode.

The Mode selection DIP1 must be reset to normal operation within 20 seconds after a completed pairing process. A new pairing process will be initiated every 20 seconds.

After a successful Hi-O pairing process, LED D8 (red, Hi-O locked / encrypted) should be on. If LED D9 (green, Hi-O unlocked) is on, the pairing process failed.

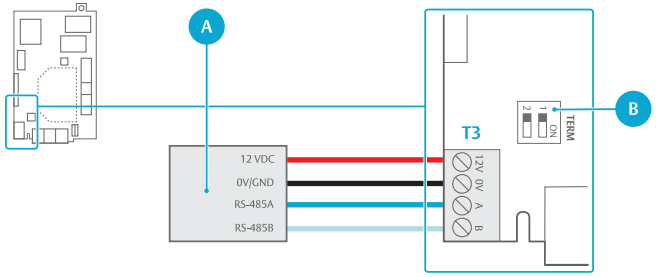
> **Note!**
> During the Hi-O pairing process, exit buttons cannot be used to open the door.

9) Power cycle the controller unit.

Removing Hi-O Devices

1) If externally powered, turn the Hi-O device on.
2) To un-pair a Hi-O device with the controller unit at power up, set the Mode selection DIP switch 1 to ON.
3) Press and hold the tamper switch.
4) Power up the controller unit and release the tamper switch when LED D15 is steadily lit (blue, Service status). When LED D15 blinks, and LED D7 blinks fast (yellow, DC out overload), the unpairing process is complete.
5) Power off the controller unit.
6) Disconnect, add, or remove a Hi-O device from the bus. Any removed device can now be used with other controller units.
7) Ensure that the remaining Hi-O devices are connected to the bus.
8) To re-pair the remaining Hi-O devices, follow *Adding Hi-O Devices* from step 3.

Connecting Readers Over RS-485



External RS-485 reader or bus (A), termination DIP (B).

1) Locate terminal block T3.
2) Connect the RS-485 bus devices to the controller unit.

Terminal T3	Connect to
A	A terminal on the RS-485 device or bus.
B	B terminal on the RS-485 device or bus.
0V	0 V/GND on the RS-485 device or bus.
12V	Optional. +12 V on the RS-485 device or bus.

3) Enable or disable the termination.

Termination DIP	Termination state
	RS-485 not terminated on the controller unit.
	RS-485 terminated on the controller unit.

For more information, download the latest versions of:

Incedo™ Open InControl 3270 / ToConnect 3270 Quick Controller Guide

Incedo™ Open InControl 3270 / ToConnect 3270 Installation Guide

Incedo™ Open Operator Guide